UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/890,836	08/03/2001	Andrew Bett	20377YP	7869

210 7590 04/08/2003

MERCK AND CO INC
P O BOX 2000
RAHWAY, NJ 070650907

EXAMINER
HILL, MYRON G

ART UNIT	PAPER NUMBER
1648	9

DATE MAILED: 04/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/890,836	BETT ET AL.	
	Examiner	Art Unit	
	Myron G. Hill	1648	

-- The MAILING DATE of this communication appears on the c ver sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 December 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1- 41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1- 15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *Notice to Comply* .

DETAILED ACTION

Applicant's election with traverse of Group I in Paper No. 8 is acknowledged. The traversal is on the ground(s) that the groups are all so related that no extra burden is placed on examiner to examine entire application. This is not found persuasive because the application contains multiple products as outlined in the restriction requirement that do not share a common technical feature and thereby under PCT Rule 13.1 lack unity. Claims 16- 41 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention.

The requirement is still deemed proper and is therefore made FINAL.

Applicant is advised that a rejoinder of claims is possible at a later date if the product is eventually found patentable. Guidance on treatment of product and process claims in light of *In re Ochiai, In re Brouwer* and 35 U.S.C. §103(b) is set forth in the Commissioner's Notice of February 28, 1996 published on March 26, 1996 at 1184 O.G. 86.

> To facilitate examination under § 103, where product and process claims are presented in the same application, applicant may be called upon under 35 U.S.C. § 121 to elect claims to either the product or process. The claims to the non-elected invention will be withdrawn from further consideration. However, in the case of an elected product claim, rejoinder will be permitted when a product claim is found allowable and the withdrawn process claim depends from or otherwise includes all the limitations of an allowed product claim. Withdrawn process claims not commensurate in scope with an allowed product claim will not be rejoined. In the event of rejoinder, the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104 - 1.106. If the application containing the rejoined claims is not in condition for allowance, the subsequent Office action may be made final, or, if the application was already under final rejection, the next Office action may be an advisory action.

This action is on claims 1- 15.

Sequence Requirements

This application contains sequence disclosures that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 CFR 1.821(a)(1) and (a)(2). However, this application fails to comply with the requirements of 37 CFR 1.821 through 1.825 for the reason(s) set forth on the attached Notice To Comply With Requirements For Patent Applications Containing Nucleotide Sequence And/Or Amino Acid Sequence Disclosures.

At least claim 8 contains a sequence that is not referred to by a SEQ ID#.

Full compliance with the sequence rules is required in response to this Office Action. A complete response to this office action should include both compliance with the sequence rules and a response to the office Action set forth below. Failure to fully comply with **both** these requirements in the time period set forth in this office action will be held non-responsive.

Information Disclosure Statement

The file wrapper indicates that an IDS was submitted along with references; however, neither were to be found in the file wrapper. Applicant is requested to submit a duplicate PTO-1449 (paper 5).

Claim Objections

Claims 10- 13 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The claims 10-13 depend on a claim that is a nucleic acid. A helper virus is not just a nucleic acid. It is more than just nucleic acid. It is not clear that the two can be equated as indicated by "is" and the virus falls outside the scope of the elected invention. The claims will be examined as they read on nucleic acid. If claims to the nucleic acid of claim 1 are allowable, then claims to a virus that contains that nucleic acid could be rejoined.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1- 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear what metes and bounds of "low homology" is and it is not clear what the function or property of the packaging signal is relative to the wild-type. It is not clear how a nucleic acid can be a helper virus in claim 10. Claim 7 is not definite in what "2-3 times less efficient" relates to because Hardy (as discussed below) teaches the same construct in different host cells has different packaging efficiencies (page 39, lines 18- 20). In claim 8 it is not clear what is the

consensus sequence. Is it the consensus the "A" element or is it the sequence in the nucleic acid molecule?

While applicant may be his or her own lexicographer, a term in a claim may not be given a meaning repugnant to the usual meaning of that term. See *In re Hill*, 161 F.2d 367, 73 USPQ 482 (CCPA 1947). The term "A element" in claim 8 is used by the claim to mean "ATTTGN_8GC," while the accepted meaning is "GT($_{N3-4}$)TTTG" for the term "A repeat" as taught by Grable and the similarity may be confusing.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1- 5, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Hardy (WO97/32481).

Hardy discloses a nucleic acid that comprises a low homology packaging signal flanked by recombinase sites wherein the nucleic acid is also a helper virus and deleted in the E1 gene (page 8, line 14 to page 9, line 19, and page 39, lines 5- 20). On page 39 packaging signals are discussed and are not called "low homology"; however, it is clear from the examples that human Ad5 is used as a wild type, and for deletion mutants (low

homology because less than full length packaging signals), the detection of encapsidated DNA (there can be no packaging without encapsidation) greatly reduced (lines 10- 12). Also constructed were packaging signal recombinase flanked helper virus using packaging signals from other types of adenovirus. While exact sequences were not disclosed, it is well known in the art that the signals are not 100% homologous; therefore, being less homology and this can be interpreted as low homology, this also being demonstrated by the reduced packaging efficiency (page 39, line 19).

Thus, from the teachings of Hardy, a nucleic acid molecule for use as a helper virus it is helpful that it is inefficiently packaged (as taught on page 39) and in particular that it can also be combined with a recombinase site to further reduce packaging (abstract).

Claims 6, 8, and 9- 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Hardy.

Hardy teaches using heterologous packaging signals, in this case Ad 7 in place of a "wild-type" Ad5 packaging signals which are equivelant but not identical and not co-linear as indicated by genome position (page 39). These constructs can be plasmids and can contain deletion of E1 and be a helper virus (page 20, lines 16- 20). It is known in the art that an adenovirus with a E1 deletion and still containing E3 can accommodate an insertion of about 2.9Kb.

Claim Rejections - 35 USC § 102

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 14 is rejected under 35 U.S.C. 102(e) as being anticipated by Graham (US 5,919,676).

Graham teaches a E3 containing nucleic acid that can have an insertion of 2.7Kb (an E1 deleted adenovirus contains an E3 region and can have an insertion up to 3.2Kb, column 1, lines 29- 32).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 6, 8, 9, and 12- 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hardy.

Hardy teaches nucleic acid as discussed above as well as deletion of E3 (Example 9, page 38).

Hardy also teaches insertions into this deletion (page 4, lines 16- 24).

The level of skill in the art of genomic adenovirus manipulation is very high and one of ordinary skill in the art would know that DNA could be inserted in combination

with a deletion of E3 or other compensatory deletion and that the adenovirus genome must remain a certain size for efficient packaging. The specific choice of insertion can be determined by one of ordinary skill in the art depending on the result desired.

Thus, it would have been prima facie obvious to delete portions and or insert foreign DNA with the expectation of success in creating a recombinant adenovirus.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Graham (US 5,919,676).

Graham as discussed above in the rejection of claim 14 teaches the insertion of DNA.

Graham does not teach insertion of introns.

One of ordinary skill in the art would know that a variety of DNA can be inserted into a nucleic acid. One would use non-coding heterologous sequence as stuffer and introns are examples of this type of DNA.

Thus it would be prima facie obvious to insert intron DNA into a nucleic acid molecule with the expectation of success.

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Myron G. Hill whose telephone number is 703-308-4521. The examiner can normally be reached on 9am-6pm Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Housel can be reached on 703-308-4247. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-4242 for regular communications and 703-308-4242 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

Myron G. Hill
Patent Examiner
April 6, 2003

JAMES HOUSEL 4/7/03
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600